

**Quarkonia measurement in  $p+p$  and  $d+Au$  collisions  
at  $\sqrt{s}=200$  GeV by PHENIX Detector.**

**Cesar Luiz da Silva<sup>a</sup>** for the PHENIX Collaboration

<sup>a</sup> Iowa State University  
510C Brookhaven National Lab, Upton/NY 117973 - U.S.A.

Contact e-mail: *slash@bnl.gov*

Charmonium suppression in hot and dense nuclear matter has been argued to be a unique signature for the production of the quark gluon plasma (QGP). In order to search for this effect in heavy ion collisions one must have a clear understanding of quarkonia production and the modifications present in their spectrum resulting from the interaction with normal cold nuclear matter. The PHENIX experiment has measured  $J/\psi$ 's spectra from deuteron-gold ( $d+Au$ ) interactions at  $\sqrt{s}=200$ GeV and compared these with a new proton-proton baseline (2006 RHIC run) in order to constrain these cold nuclear matter effects. For  $p+p$  collisions we will present the transverse momentum dependence of the  $J/\psi$  yield for the higher integrated luminosity, a new  $\psi'$  spectrum,  $J/\psi$  polarization and the latest status of searches for other quarkonium states ( $\chi_c$  and  $\Upsilon$ ). We will also report the status of the analysis from the  $d+Au$  2008 RHIC run, with an integrated luminosity of  $80 \text{ nb}^{-1}$ , compared to the  $2.4 \text{ nb}^{-1}$  collected in the 2003 RHIC run.